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# REMOVAL OF THE UTERINE APPENDAGES.

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# REMOVAL OF THE UTERINE APPENDAGES.

THE different conditions for which removal of the ovaries alone, or of ovaries and tubes, has been resorted to—most of which I shall advocate as warranting the operation, but in reference to some of which I shall raise a word of caution, if not of protest—may be classed under the following heads:

1. Diseases of the uterus.
2. Diseases of the tubes.
3. Diseases of the ovaries.
4. Disturbances of the general system, but especially of the nervous system.

Let us consider the last division first. It has long been an established fact that manifestations of abnormal nervous phenomena almost invariably are most marked at the menstrual epoch. Between such manifestations and the female sexual apparatus there is a close bond of sympathy. At the time of ovulation, the despondent are often most depressed, the irritable are most excited, and the hysterical, the epileptic, the maniacal, and the hypochondriacal insane, usually, present in their most typical forms the evidences of their diseases. With them the congestion and hyperæsthesia pertaining to ovulation seem still further to unhinge the disordered nervous system. Undoubtedly, the process of ovulation does modify and usually aggravates functional or organic perturbation of the nervous system, and there can be no question but that hysteria, hystero-epilepsy, true epilepsy, or insanity may be determined or may be perpetuated by disturbed ovulation.

The removal of the ovaries, however, cannot be considered justifiable merely because abnormal nervous phenomena are most marked at the time of ovulation, even though the nervous disease is of as severe a type as epilepsy or insanity. It should be shown—at least there should be the strongest reason for believing—that the epilepsy or insanity is directly dependent upon the ovulation. The mere aggravation of the symptoms at the menstrual epoch is far from being a sufficient proof that ovulation has determined or is perpetuating the nervous disease. When ovulation merely aggravates the disease, the abnormal nervous phenomena will appear at the intermenstrual periods, and the exciting causes will be numerous and varied: anger, excitement, fatigue, indigestion,—one or more,—will awaken the attacks. If, however, epilepsy or insanity appear only at the menstrual periods, and not between those epochs, and this has been observed for months, and the periodical return has resisted other well-directed remedies, and there exist, as is usually the case, other evidences of disturbed ovulation, then there is, to my mind, a sufficient warrant for the belief that ovulation has originated the epilepsy or the insanity, and is perpetuating it. In such cases the disease, unless checked, will become more and more firmly established as time passes, and eventually will not be limited to the ovulation period.

Such cases are doubtless very rare; but they do exist. And in such, after having failed to secure relief in other ways, the removal of the ovaries becomes an obligation resting heavily upon the medical attendant. In such cases experience has shown that to stop ovulation is to stop the epilepsy or the recurrent insanity. There are on record a few cases in which these diseases seemed to have been cured permanently by the removal of the ovaries.

I will go a little further in reference to

these two most grave diseases, epilepsy and insanity, and claim that there are a few cases in which the uterine appendages should be removed, even though intermenstrual epilepsy or insanity exist. I refer to cases in which the type changes at the period of ovulation so as to present at that time—and only at that time—mania or homicidal tendencies. When an epileptic or an insane woman is harmless during the intermenstrual period and becomes a maniac or prospective homicide during the period of ovulation, the indication, amounting to an obligation, is to stop ovulation by the removal of the ovaries and tubes, other remedies having been duly tried. By so doing, one may prevent the recurrence of mania and of the homicidal insanity. In most instances, when the symptoms have shown the dependence of epilepsy or of insanity "upon ovaries viciously performing their functions," the ovaries at the time of opening the abdomen have presented evidences of organic abnormality, though such abnormal condition may not have been ascertainable by any examination prior to the performance of laparotomy.

Hystero-epilepsy is undoubtedly dependent largely upon an irritation of the nervous system reflected from the ovaries, especially at the menstrual nisus. But hystero-epilepsy is of much less serious nature than epilepsy or insanity, and is more amenable to treatment by means which in themselves bring no risk to the patient. Experience has shown that this disease usually disappears in time, under well-directed treatment of mind and body. The hystero-epileptic, generally, in a few years becomes a useful woman, and possibly a mother. It is true she often transmits her nervous temperament, her nervous enfeeblement, to her offspring; but this fact does not justify the surgeon in rendering child-bearing impossible. While in some minds the removal of the ovaries may be justifiable in the confirmed epileptic or in the confirmed insane, in order to prevent offspring, yet there can be no question as to the indefensibility, if not criminality, of performing this operation with such a view in a hystero-epileptic.

Hystero-epilepsy, however, may be but one of several symptoms resulting from established lesions of the uterine appendages. In such a case Battey's operation is possibly demanded, because of otherwise incurable pelvic disease. The existence of hystero-epilepsy, then, does not of itself warrant the removal of the uterine appendages; and, on the contrary, its existence does not contra-indicate the operation when other and sufficient indications exist for its performance.

In reference to the still less serious disease, hysteria, the unanimous opinion of prominent gynæcological surgeons, as shown in their writings, is that the disease, absolutely, does not justify Battey's operation; nor did Battey intend that his operation should be performed because of hysteria alone. Battey states very positively, also, that the operation should not be resorted to in the treatment of uncomplicated nymphomania, for the removal of the ovaries would not prove curative, not even palliative, of that condition, just as their removal does not lessen the normal sexual desire.

There are other systemic reflexes of ovarian origin which occasionally disturb the health to such an extent as to warrant the removal of tubes and ovaries. When invalidism has been established for years by reason of a nervous exhaustion dependent upon ovarian reflexes; when anorexia and persistent vomiting; when functional cardiac disturbance and enfeebled blood-circulation; when wakefulness and reflected neuralgias,—have established an invalidism that has resisted for years the most skilfully directed remedies within the patient's reach; when, as a result, the establishment of some fatal disease is pending,—then the removal of the ovaries and tubes will probably supplant invalidism and impending fatal disease with health and probably long life. Such symptoms justified, in Battey's mind, the performance of his operation, and his experience, with that of other surgeons, has proved the correctness of his *a priori* reasoning.

Careful examination, microscopically as well as macroscopically, has shown that, where ovaries have been removed by reason of serious failure of health dependent upon ovarian disturbance, the ovaries have not been normal, but have presented lesions that had seriously crippled their functions. It is, however, in reference to the performance of Battey's operation in the treatment of mental and neurotic diseases that it is necessary to raise a voice of caution and of protest. Let any one consult the re-

ports of the operations for such conditions, and he cannot avoid the conclusion that this operation has in a number of instances been performed when neither the nature of the symptoms nor the benefits secured justified the procedure. It is to be expected that even able and conscientious surgeons will fall at times into errors when resorting to new surgical procedures; yet in some reported cases the operators have been blinded to the best interests of the patient either by reason of too great enthusiasm for abdominal surgery or by reason of too great, and hence unworthy, ambition for personal advancement. In the selection of a case for the operation one must exercise his most conscientious and most intelligent judgment. In reference to this particular resort to Battey's operation the pendulum has doubtless gone too far in the direction of surgical interference; yet to claim that the operation is never indicated in nervous or mental disorders is but swinging the pendulum too far to the other extreme. That some operators have removed the uterine appendages unwarrantably must not lead the physician to the conclusion that the operation is never warranted. In this matter, as in others, the general practitioner, as far as opportunity permits, must acquaint himself with the literature involved, and be prepared to give a fair and unbiassed opinion, so that while at times protecting his patient from the performance of an unnecessary surgical operation he may not stand at other times in the way of the adoption of the only measure that can restore health. The field for Battey's operation in psycho-neurotic diseases is certainly very limited. In a given case it is extremely difficult to determine whether the necessity exists for the operation or not. There are no hard and fast rules to be applied in endeavoring to reach a conclusion, and each case must be judged according to its own phenomena. In such cases Battey's operation must not be hastily selected: it can be justifiable only after numerous approved remedies have failed.

I do not intend to discuss those enlargements of the ovary, usually cystic, rarely solid, which lead to what by common consent is known as ovariotomy, but will briefly speak of those changes in the ovaries for which Battey's operation has been resorted to. Oöphoritis and peri-oöphoritis are the two processes which in most cases underlie the morbid anatomy of the ovaries. Acute oöphoritis rarely occurs except as a part of a pelvic inflammation in which either the pelvic peritoneum or pelvic cellular tissue is largely involved. The ovaritis is often masked by the more general pelvic inflammation. Such acute inflammation does not often call for removal of the ovaries, yet occasionally an abscess develops in an ovary, the surroundings of the organ being such that the abscess cannot be safely emptied without a laparotomy, and then the only rational (as it is the safest) method is the removal of the diseased ovary. An abscess of the ovary is the most dangerous form of pelvic abscess, for it is very apt to establish fatal peritonitis by rupturing into the peritoneal cavity, unless fortunately the pelvic tissues have been so matted together as to protect the peritoneum. The removal by laparotomy of an ovary containing an abscess causes the patient to spring almost immediately into a condition of health. Inflammation of the ovary and its surroundings may produce such changes within the ovary or on its external surface as, by reason of pain and numerous reflexes, to lead to invalidism of a permanent character unless the ovary is removed. Under inflammatory action this organ becomes enlarged and is displaced, usually posterior to the uterus, and becomes adherent to it. The ovarian parenchyma becomes so changed as to render the organ's function difficult or impracticable, and painful in either case. Inflammatory lymph-deposits may form over the periphery of the ovary so as to cramp and imprison the organ, and effectually to prevent the escape of the ova even if they should become matured. The tubes are apt to participate in the morbid process and to contribute to the local and systemic disturbances. The oöphoritis or peri-oöphoritis may have originated in an injury, in syphilis, in puerperal inflammation of septic character, frequently after abortion, or it may be after labor at any period. They are frequently sequels of gonorrhœa, and more rarely of an exanthem or of rheumatism. They may be acute in their earlier phenomena, or they may develop stealthily and not be recognized until local changes have become far advanced. It is true that the great majority of such cases, under judicious management and favorable circumstances, recover to such an extent as to

place the performance of Battey's operation out of the question; yet there occur certain cases in which, by reason either of dyscrasia, mismanagement, or unavoidable errors in occupation on the part of the patient, the change in the ovaries and their surroundings becomes permanently established. In such cases invalidism becomes fixed throughout the years during which ovulation continues. Pain during and between the menstrual period becomes a prominent and distressing symptom. Locomotion becomes painful, the ordinary avocations of life cannot be followed, opiates are resorted to, micturition is interfered with, the nervous system suffers, and convulsive manifestations may appear. The prolonged interference with rest, sleep, exercise, and nutrition, and the resort to opiates eventually, lead to the development of anæmia and, later on, to probably fatal cardiac, or pulmonary, disease. Doubtless many members of this Society have seen such patients. In such is not Battey's operation, with its probably favorable result, to be preferred to years of invalidism and to the possible occurrence of an induced fatal disease? Must such a patient be doomed to physical and mental suffering? Must she be left to a life of uselessness and of invalidism? Here, too, in the selection of a case for operation, the surgeon must exercise that intelligence which comes from a faithful study of the subject, and he should be conscientious as well as skilful. In a much smaller number of cases the ovaries have been removed by reason of serious symptoms dependent upon a degeneration in which the ovarian parenchyma seems to have disappeared almost entirely and numerous minute cysts formed. Rarely a condition of cirrhosis of the ovary has been the morbid change. Occasionally a hernia into the inguinal or femoral canal, into the sciatic or thyroid foramen, or by the side of the vagina, has necessitated its removal. Prolapse of the ovary, usually posterior to the uterus, sometimes into the utero-vesical pouch, has seemed to be productive of grave and obstinate symptoms in some instances, and has led to removal of the organ.

Mr. Tait has popularized the removal of the Fallopian tubes for diseased conditions of the tubes themselves. The alterations of the tubes for which their removal has been most frequently resorted to are hydrosalpinx, or accumulation of serum, pyosalpinx, or accumulation of pus, and hæmatosalpinx, or accumulation of blood within the tubes. I have mentioned these conditions in the order of their relative frequency. In either case both extremities of the tube become occluded, and distention has followed, often to the size and shape of a distended piece of intestine, in rare instances to the extent of containing several pounds of fluid.

It has been said that "all the diseased tubes must go to Birmingham;" but Mr. Tait exhibits the tubes he has removed, and also publishes his cases with such data that the most sceptical cannot but be convinced, both as to the much greater frequency of the morbid conditions than was suspected a few years ago, and also as to the advantages of removal.

Occlusion and distention of the tube result usually from a salpingitis itself arising from causes similar in character to those producing ovaritis, the most frequent of which is gonorrhœa. Salpingitis and ovaritis are apt to be associated, and either or both may be but a part of a general pelvic inflammation. Next to gonorrhœa, extension of septic endometritis is the most frequent cause of the salpingitis which precedes the occlusion and distention. The distention may, however, be dependent upon congenital malformation of the tube. The pathological condition of the tube not infrequently leads to permanent loss of health, or, as in the case of pyosalpinx, to fatal peritonitis from rupture of the tube and the escape of pus into the peritoneal cavity. It seems quite certain, from the observations of Mr. Tait, that in some cases of recurring pelvic inflammation the exciting cause is the rupture of a distended tube. Occasionally the tube may empty itself into the uterus, especially if the condition is that of hydrosalpinx. This fact explains the occasional sudden escape of fluid, usually serous, sometimes purulent or bloody, from the vagina.

The symptoms resulting from salpingitis, with occlusion and distention, are very similar to those produced by oöphoritis and peri-oöphoritis. In pyosalpinx the prognosis, both as to life and as to duration of the disease, is more unfavorable than in most cases of inflammation of the ovary, the disease ranking with ovarian abscess as to associated dangers. The only certain relief for occlusion with distention of the tube is in the removal of the tube.

Amelioration of symptoms occurs when the fluid escapes into the uterus, but reaccumulation may take place from time to time, and symptoms may disappear only to reappear probably at short intervals, until invalidism becomes established.

Prior to the performance of laparotomy the diagnosis of diseased ovaries and tubes must frequently rest upon the symptoms alone.

In some cases one cannot by any method of physical examination determine the condition of ovaries and tubes. An exploratory incision through the abdominal wall may then become essential to the completion of the diagnosis. A simple exploratory incision brings with it exceeding little risk to the patient. Still, in many instances an enlarged, displaced, or adherent ovary can be recognized as such by a careful bimanual examination under ether, and a distended tube can be recognized, especially through the rectum, as an elongated, sometimes fluctuating, tumor. Dr. Lusk reports that in one instance he mistook, in such an examination, an adherent and distended intestine for a distended tube. A laparotomy disclosed the error. His case illustrates the difficulties of diagnosis. Even if the physical examination should not determine the existence of an abnormality of ovaries or of tubes, and yet the symptoms are grave and intractable and point to pelvic disease, an exploratory abdominal incision is indicated. With one or two fingers introduced into the abdominal cavity, the condition of the uterine appendages can be ascertained without material risk to the patient. In a few instances, to wait until one can by ordinary methods of examination determine ovarian or tubal disease will be merely waiting for the abnormality to become so decided as to render surgical interference extremely hazardous or to be leaving the patient go unrelieved. In many cases the diagnosis is easy without exploratory laparotomy; in some cases a positive diagnosis is impossible without it.

When a Fallopian pregnancy has resulted in rupture of the tube, the indication is to make an incision through the linea alba, to ligature and to remove the affected tube, to control bleeding, to clean the peritoneum of blood, and to remove the fœtus. The fact that a few patients recover after symptoms of rupture of the tube in extra-uterine pregnancy should not deter from the performance of this operation. It seems quite certain that the number of such recoveries is very small compared with the number of mothers who die because of the rupture, although statistics are scarcely attainable. Autopsies and the experiences of a few surgeons show that the operation of ligaturing and removing the tube after rupture in Fallopian pregnancy would usually be a very simple procedure. At the period of pregnancy when rupture most frequently takes place—that is, at the second month—the cyst has not commonly formed adhesions, and there is no difficulty in stopping, and in avoiding, hemorrhage. Mr. Tait has operated in nine such cases,—*i.e.*, after rupture of the tube,—with only one death. It is to be hoped that American physicians will not continue to let such patients die without resort to the only rational and now well-established measure of relief.

To arrive at some conclusion as to the results following removal of the uterine appendages in the different diseases discussed, we must consider the prognosis in reference not only to the dangers attending the operation, but also as to the influence upon the disease or the symptoms for the relief of which the operation was performed.

When the appendages are removed because of reflex disturbances, as in epilepsy, there is almost no risk of death following the operation if the ovaries and tubes be free from adhesions. The more nearly normal the appendages, the less the danger of death after operation. Mr. Tait has operated six times for epilepsy, with no deaths; and he states that death ought never to follow such operations, the appendages and their surroundings being nearly normal in character. The operation, under such circumstances, is simple and quite safe in capable hands.

A few reported cases of operation for epilepsy and for mania seem to show the disease cured; in a larger number decided benefit followed; in others no relief. It is too soon to draw conclusions from the bare statistics of such cases, and I shall not submit a statistical statement. Some cases are apparently cured for a while, and the disease then returns; others seem but slightly or not at all benefited for months, and then greatly improve and seem to be recovering. The published reports in most cases do not give the re-

mote effects upon the diseases. I draw, however, the impression that, in a very few judiciously selected cases, a cure of epilepsy or of insanity will follow Battey's operation.

A much larger number of operations have been performed because of inflammation of ovaries and tubes, including under this head cases of distention of tubes with pus, blood, or serum. Operations performed for these conditions bring risks to life varying greatly with the condition of the appendages and their surroundings. The dangers are relatively great when extensive, dense, and vascular adhesions exist, or when pus is present, as in pyosalpinx and in ovarian abscess, as in removal the pus may escape into the peritoneal cavity and fatal peritonitis result. However, Mr. Tait has operated in two hundred and one cases for inflammatory disease, with only ten deaths: a mortality of about five per cent.

The results secured by this skilful surgeon, though more favorable than those of most other operators, yet present, as nearly as can be obtained, the mortality inseparable from the operation. In studying less favorable statistics, the degree of lack of surgical skill becomes a larger element of uncertainty, and it is more difficult to determine to what extent the less favorable result is dependent upon the essential nature of the operation itself.

Hegar states that the mortality following his operations has been about sixteen per cent., and gives the mortality of other operators with whom he is acquainted at thirty-two per cent.

Dr. Mundé has tabulated one hundred and twenty operations by different surgeons, with a mortality of about twenty-two per cent.

When the appendages have been removed because of extensive disease, as occlusion and distention of the tubes, oöphoritis and peri-oöphoritis, with displacement of the ovaries and matting together of the appendages and surrounding structures, ovarian abscess, or Fallopian pregnancy, the effect upon the symptoms has been in nearly all cases very satisfactory, the patient being restored to good health. The benefit, however, is not always immediate, and it may be several months before the symptoms disappear. In some instances the local pains continue indefinitely. In such cases inflammatory action may remain in the pelvis after the removal of the appendages. The pelvic peritonitis or cellulitis so frequently accompanying ovaritis or salpingitis may continue in a chronic form, though usually such inflammation gradually and entirely subsides after the fluxion and hyperæsthesia of ovulation have ceased to recur. In some such unfavorable cases a pelvic peritonitis may have arisen because of the operation, and may occasion a continuance of pelvic distress.

The treatment of uterine myomata very frequently taxes to the greatest extent the skill and perseverance of the physician and surgeon. The most urgent and most distressing symptoms usually are hemorrhage and those due to pressure. The pressure-symptoms, though modified often by the location of the tumor, are usually in proportion to the size and weight of the myoma. The congestion incident to ovulation is usually the element that causes and aggravates the hemorrhage, that determines and stimulates the increase in size and in weight. When the natural menopause has become established, the periodical congestion of ovulation does not occur, and hemorrhage usually disappears, the tumor shrinks, and the pressure-symptoms become less pronounced. It is true such results do not always follow the natural menopause, but they usually do, and are to be expected, excepting in very large tumors probably, and in those of fibro-cystic character. The influence exerted by the natural menopause on uterine myomata led to the removal of the adnexa with the view of establishing an artificial or produced menopause. The removal of the ovaries and tubes for such conditions has been frequently resorted to during the last few years, and doubtless will grow in favor with the profession as the results become more definitely determined. Of course, there are very many patients in whom the symptoms are slight, and the question of the performance of the operation under consideration does not arise. That the mortality dependent upon uterine fibroid tumors, when not interfered with, is extremely low must not too quickly lead one to the rejection of this operation, though somewhat dangerous as to its immediate results, and though it is one rendering sterility certain. An operation which, while it brings a somewhat increased risk of immediate death, brings also great probability that health

and a useful life will be substituted for years of illness and relative uselessness, becomes, I take it, not merely a matter of option, but a matter of duty, provided there is no less dangerous method of relief. The adnexa should not be removed either when the tumor or tumors can be removed without great risk, with the écraseur, by traction, and by enucleation, or when the hemorrhage and pressure-symptoms can be sufficiently controlled or ameliorated by other recognized measures.

In the *British Medical Journal* for January 31, 1885, Mr. Tait states that he has removed the appendages for uterine myomata ninety-nine times, with seven deaths: a mortality of about seven per cent.

Mr. Keith, in the same issue of that journal, states that he has removed both ovaries twelve times for myomata, with no deaths. Mr. Keith states that in only one of the twelve cases has menstruation continued, and in that case a portion of one ovary was unavoidably left. He also states that of upwards of sixty cases in which he removed both ovaries for disease, in only one did menstruation return regularly. The cessation of menstruation and the checking of hemorrhage occur, with very few exceptions, after removal of the appendages for myoma. Mr. Tait claims that this result will probably not be secured unless the tubes are also removed, as he believes that the tubes are more concerned in determining menstruation than the ovaries. The difficulties of the operation for myoma vary greatly in different instances, according to the position of the ovaries, to the twisting of the tumor, and according to adhesions or the approximation of the ovaries to the tumors. These conditions cannot be determined until after the abdominal incision has been made. In some instances of attempted removal of the appendages, it has been found necessary to remove the uterus because of injury done to it during the operation; and in other instances it has been impossible to find the ovaries, they being embedded in the mass of myomata.

Compared with hysterectomy, or the supravaginal removal of the uterus, the result has been greatly in favor of the removal of the appendages. Yet Mr. Keith has reported thirty-eight hysterectomies with only three deaths: a mortality of about eight per cent. But he has removed the appendages for myoma twelve times, with no mortality. Mr. Tait has performed hysterectomy fifty-four times, with nineteen deaths: a mortality of over thirty-five per cent.—to be contrasted with his mortality of seven per cent. after removal of appendages ninety-nine times for myoma. He speaks of hysterectomy as a terrible operation.

The enucleation of large submucous or interstitial myomata is a grave operation, and, were sufficiently extensive statistics ascertainable, a very large mortality would doubtless be presented dependent upon it. It would be better, in some cases in which the symptoms seem to demand enucleation of such large growths, to resort to removal of the appendages, as being less dangerous and more likely to stop permanently the hemorrhage.

In very large tumors and in those of fibro-cystic character the removal of the ovaries seems to be of little, if any, service.

Dr. Battey, in his earlier operations, removed the ovaries through an incision in the vagina. More recently he has resorted to an incision along the linea alba. Unless one is positive that the ovaries are not adherent and not materially enlarged, the incision should not be made through the vagina; and, as the exact condition of the ovaries can rarely be ascertained with certainty before operation, it is best under all circumstances to perform a laparotomy, instead of operating through the vagina, when removal of the appendages is aimed at. It has been found that adherent ovaries and tubes cannot be removed easily and entirely through the vagina, and the operator cannot with certainty control the bleeding which accompanies the tearing up of adhesions.

After laparotomy, the operation of removal is very simple if the ovaries and tubes are nearly normal and are free from adhesions. The operation becomes extremely difficult when the appendages are matted together and are adherent to the bottom of the pelvis. In the hands of surgeons inexperienced in the details of abdominal surgery, the mortality attending removal of the appendages must continue high.

It adds but little, if at all, to the difficulties of the operation, to remove tubes and ovaries together; and as Mr. Tait believes, from his observations, that the tubes are important factors in determining

menstruation and in determining what have been considered symptoms of ovarian disease, it becomes prudent to remove the tube with the ovary. It is now generally accepted that both ovaries should be removed, even though the symptoms have pointed to a diseased condition of one side only. In several cases in which an apparently healthy or nearly healthy ovary had been left, the symptoms, after disappearing from the side from which the ovary had been removed, had appeared and persisted on the side of the remaining ovary, and a resort to a second operation for its removal was necessitated.

Proper antiseptic precautions during the operation should be observed; *i.e.*, the operator should have clean hands, clean instruments, clean sponges, and clean ligatures and sutures. Only one assistant directly assisting in the operation is necessary. Corrosive sublimate may be used to render everything aseptic excepting edged tools. The spray has been discarded by most surgeons.

One should not render a woman sterile excepting in the relief of some grave condition. Objection to this operation based upon the fact that sterility is rendered perpetual is in many instances of little weight, as often sterility has already become established by the very condition demanding the removal of the appendages. It seems to be the general testimony that the sexual desire is not usually materially influenced by the operation. The sexual act, often previously painful or impossible, may, after recovery from the operation, be accomplished with entire absence of pain. In a few instances excessive sexual desire has disappeared after removal of the ovaries: in such cases there have been organic changes doubtless in the uterus and its surroundings, and, these being remedied by the operation, the abnormal sexual desire dependent on these organic changes has subsided. After removal of the ovaries the woman's appearance becomes none the less feminine, and the only change it undergoes is that which follows restoration to health. There is no change in the voice.

There are a very few recorded cases in which maniacal or hypochondriacal insanity has developed after the operation,—whether because of the operation or not it is impossible at present to determine.

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